ABSTRACT OF THE DISCLOSURE

The present invention provides method and apparatus of a fast DCT implementation. DCT calculation is combined with quantization scales by a procedure of pre-processing. During DCT coefficient calculation, only non-zero coefficients are calculated. If pixel variance range is smaller than a first predetermined threshold, a predetermined lookup table is compared to decide the DCT coefficients. When a pixel variance range of a block pixels is within the second threshold, coupled with the quantization scales, the pre-processing determines the amount of non-zero DCT coefficients need to be calculated. Only a limited amount of LSB bits within a block is applied in the calculation of DCT coefficients. A previously saved pixel with equal or closest pixel value is used to replace the operation of current pixel's multiplication.